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SAWFLIES (HYMENOPTERA: SYMPHYTA) IN URBAN ENVIRONMENTS IN THE WASHINGTON, D.C. AREA

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Abstract.—Malaise traps were used to determine the species, abundances, and seasonal occurrences of adult sawflies in the Washington, D.C., metropolitan area. The traps, placed in two urban environments for six years and three more natural habitats for two years from March to November, obtained 948 sawflies representing 117 species. Peaks in numbers of species and specimens were in May. The more abundant species were *Acordulecera pellucida* (Konow), *Schizocerella pilicornis* (Holmgren), *Allantus nigritibialis* (Rohwer), and *Ametastegia pallipes* (Spinola). Known hosts for all captured species include representatives of 53 plant genera, with Rosaceae being the most utilized plant family in urban environments. Notes on selected species are given.

Urban environments are becoming more common and are of increasing biological interest (Frankie and Koehler, 1983), but no quantitative study has yet been done on the urban sawfly fauna. As larvae, all sawfly species are plant feeders, and many are, or have the potential of becoming, important plant pests in urban environments. There are about 1100 species in North America (Smith, 1979). The purpose of this study is to determine what sawfly species are present in urban environments, their abundances, seasonal occurrences, and host-plant utilizations. The urban environment in our study consisted of relatively well manicured and ornamentally landscaped yards and semi-natural areas within a metropolitan region.

Materials and Methods

Five sites were studied in the Washington, D.C., metropolitan area, two urban environments for six years and three more natural environments for two years. The natural environments were less disturbed, non-landscaped areas. The urban environments were at residences in Glen Echo, Montgomery Co., Maryland (yard-garden trap), and near Annandale, Fairfax Co., Virginia (yard trap). The natural environments were woodland (wooded-stream-habitat trap), woods edge (ecotone trap), and field (field trap), at the David W. Taylor Naval Ship Research Center (TNSRC) in Montgomery Co., Maryland, 5 km NNW of Glen Echo. These sites are described in more detail by Barrows (1986). Because only three specimens were collected in the field trap, they are combined with the ecotone trap in Table 1.

Bioequip® (Santa Monica, Calif.) Malaise traps were used at the Glen Echo and TNSRC sites. They are 2 m tall, pyramidal, with four 0.8 m^2 rectangular openings. In Fairfax Co., a Townes-style Malaise trap was used. It is rectangular with a 1.8 m^2 opening on each side and a killing jar at one

Table 1. Families, species, number captured, flight times (earliest and latest dates), and recorded hosts of sawflies. YT = yard trap, Fairfax Co., Va.; YGT = yard-garden trap, Glen Echo, Md.; WSHT = woodland-stream habitat trap, TNSRC; ET = ecotone trap, TNSRC. Recorded hosts are from Smith (1979) and Gibson (1980).

Families, Species	YT	YGT	WSHT	ET	Total	Dates	Recorded Hosts
XYELIAE							
Xyela bakeri Konow	2	0	0	0	2	III-20; IV-7	*Pinus*
Xyela obscura (Strobl)	13	1	0	0	14	III-20–IV-17	*Pinus*
PAMPHILIIDAE							
Pamphilius middlekauffi Shinohara and Smith	1	0	0	0	1	IV-28	*Corylus*
Pamphilius ochreipes (Cresson)	2	0	1	0	3	IV-30–V-9	*Viburnum*
Pamphilius pullatus (Cresson)	0	0	1	4	5	V-1–V-8	*Viburnum*
Onycholyda luteicornis (Norton)	8	6	0	0	14	IV-29–V-26	*Rubus*
Onycholyda rufofasciatus (Norton)	0	1	0	0	1	VII-12	
PERGIDAE							
Acordulecera dorsalis Say	27	0	13	8	48	IV-28–VI-30; VIII-4	*Quercus, Corylus, Juglans, Castanea*
Acordulecera maculata MacGillivray	1	0	0	0	1	V-29	
Acordulecera mellina MacGillivray	3	4	0	0	7	VI-12-VIII-28	
Acordulecera pellucida (Konow)	49	14	0	0	63	IV-25–X-11	
ARGIDAE							
Sphacophilus cellularis (Say)	1	1	0	0	2	VII-19; VIII-7	*Ipomaea, Convolvulus*
Arge humeralis (Beauvois)	1	2	0	0	3	V-10–VI-19	*Rhus*
Arge clavicornis complex	0	0	0	1	1	V-15	
Schizocerella pilicornis (Holmgren)	6	129	0	3	138	VI-2–X-24	*Portulaca*
Sterictiphora serotina Smith	1	2	0	0	3	IV-21–V-1	*Prunus*
Atomacera decepta Rohwer	0	1	0	0	1	V-19	*Hibiscus*
Atomacera debilis Say	3	1	0	0	4	V-19–IX-2	*Desmodium*
CIMBICIDAE							
Zaraea lonicerae (L.)	6	7	4	2	19	IV-14–V-30	*Lonicera*
DIPRIONIDAE							
Monoctenus sp.	0	1	0	0	1	V-6	*Juniperus*
Diprion similis (Hartig)	1	0	0	0	1	IV-27	*Pinus*
XIPHYDRIIDAE							
Xiphydria maculata Say	20	0	0	0	20	V-14–VII-24	*Acer*
Xiphydria tibialis Say	2	0	0	0	2	VI-12; VI-17	*Ulmus, Betula, Fraxinus, Quercus, Rhus, Tilia, Prunus, Crataegus*

Table 1. Continued.

Families, Species	YT	YGT	WSHT	ET	Total	Dates	Recorded Hosts
SIRICIDAE							
Tremex columba (L.)	1	0	0	0	1	VIII-4	deciduous trees
CEPHIDAE							
Janus integer (Norton)	3	0	0	0	3	V-26–VI-2	*Ribes*
TENTHREDINIDAE							
Selandriinae							
Hemitaxonus albidopictus (Norton)	1	0	0	0	1	V-16	*Onoclea*
Hemitaxonus dubitatus (Norton)	3	0	0	0	3	VI-23–VII-16	*Onoclea*
Aneugmenus flavipes (Norton)	1	0	0	0	1	VII-15	*Pteridium*
Heptamelus ochroleucus (Stephens)	3	0	0	0	3	V-26; IX-16	ferns
Dolerinae							
Dolerus nitens Zaddach	0	37	1	0	38	IV-5–IV-16	grasses
Dolerus unicolor (Beauvois)	0	2	0	0	2	IV-7; V-8	*Phelum*
Loderus vestigialis apricus (Norton)	1	0	2	0	3	V-22–V-29	*Equisetum*
Nematinae							
Cladius difformis (Panzer)	6	9	0	0	15	IV-22–VIII-15	*Rosa*
Priophorus pallipes (Lepeletier)	0	1	0	0	1	V-12	*Prunus, Crataegus, Alnus*
Hoplocampa marlatti Rohwer	0	3	0	0	3	IV-30–V-8	*Prunus* ?
Craterocercus fraternalis (Norton)	1	0	2	0	3	IV-17–IV-24	*Quercus*
Euura sp.	1	0	0	0	1	IV-28	*Salix*
Nematus lipovskyi Smith	2	2	16	0	20	IV-16–V-9	*Rhododendron*
Nematus erythrogaster (Norton)	0	0	1	0	1	IX-4	*Alnus*
Nematus hudsoniimagnus Dyar	0	0	0	1	1	V-22	*Populus*
Nematus oligospilus Foerster	0	0	0	1	1	V-15	*Salix*
Nematus abbotii Kirby	1	0	0	3	4	V-8; V-9	*Robinia*
Nematus (*ribesii* gp.)	1	0	0	0	1	V-23	
Nematus tibialis Newman	4	0	0	0	4	VII-26–IX-9	*Robinia*
Neopareophora litura (Klug)	1	0	2	0	3	IV-17–IV-24	*Vaccinium*
Pachynematus corniger (Norton)	12	0	5	1	18	IV-28–XI-4	grasses
Pristiphora rufipes Lepeletier	1	1	0	0	2	V-20; VII-14	*Ribes*
Pristiphora bivittata (Norton)	2	2	0	0	4	IV-18–VII-16	*Spiraea*
Pristiphora abbreviata (Hartig)	2	1	0	0	3	IV-17; VIII-31	*Pyrus*
Pristiphora banksi Marlatt	10	0	0	0	10	V-1–IX-1	*Vaccinium*
Pristiphora acidovalva Wong and Ross	1	0	0	0	1	IV-28	*Salix*
Pristiphora cincta Newman	1	0	0	0	1	V-27	*Betula, Salix, Vaccinium*
Pristiphora zella Rohwer	7	0	0	0	7	VI-5–IX-28	*Rubus, Geum, Potentilla*
Pristiphora chlorea (Norton)	1	0	1	0	2	IV-27; V-14	*Quercus*

Table 1. Continued.

Families, Species	YT	YGT	WSHT	ET	Total	Dates	Recorded Hosts
Pristiphora sp. (*bivittata* gp.)	0	1	0	0	1	IV-17	
Pristiphora micronematica Malaise	0	0	0	2	2	V-1	*Salix*
Amauronematus sp.	0	6	0	0	6	IV-8–IV-21	
Heterarthrinae							
Caliroa lunata MacGillivray	4	0	0	0	4	V-26; IX-2-16	
Caliroa quercuscoccineae (Dyar)	0	1	1	0	2	V-29; VIII-3	*Quercus*
Caliroa fasciata (Norton)	0	2	0	1	3	VI-18–VIII-23	*Quercus*
Caliroa obsoleta (Norton)	0	0	1	0	1	VII-2	*Quercus*
Endelomyia aethiops (F.)	0	4	0	0	4	IV-20–V-1	*Rosa*
Metallus rohweri MacGillivray	15	0	0	0	15	VII-8–IX-16	*Rubus*
Nefusa ambigua (Norton)	2	0	0	0	2	V-14	*Viola*
Fenusa pusilla (Lepeletier)	0	0	0	1	1	V-1	*Betula*
Blennocampinae							
Eutomostethus ephippium (Panzer)	13	27	0	0	40	IV-18–V-29	*Poa*, grass
Eutomostethus luteiventris (Klug)	1	0	0	0	1	V-22	*Juncus*
Eupareophora parca (Cresson)	0	1	1	0	2	IV-1; V-1	*Fraxinus*
Phymatocera fumipennis (Norton)	2	0	5	0	7	V-22–VII-12	*Smilacina*
Phymatocera racemosae Smith	1	0	0	0	1	VII-15	*Smilacina, Polygonatum*
Paracharactus rudis (Norton)	5	0	0	1	6	IV-23–V-29	grasses
Monophadnoides geniculatus (Hartig)	3	0	0	0	3	IV-27–VI-10	*Rubus*
Periclista marginicollis (Norton)	0	1	1	0	2	IV-19; IV-23	*Carya*
Periclista albicollis (Norton)	1	1	2	0	4	IV-14–IV-30	*Quercus*
Periclista inaequidens (Norton)	0	0	1	0	1	IV-10	*Quercus*
Halidamia affinis (Fallen)	0	7	1	1	9	IV-17–V-31	*Galium*
Allantinae							
Pseudosiobla excavata (Norton)	0	0	0	1	1	V-22	*Cephalanthus*
Allantus nigritibialis (Rohwer)	19	32	0	0	51	IV-15–V-29; IX-9–X-9	*Rosa*
Monostegia abdominalis (F.)	1	0	0	0	1	VIII-26	*Lysimachia*
Ametastegia aperta (Norton)	2	2	6	0	10	IV-21–VIII-28	
Ametastegia articulata (Klug)	3	1	0	0	4	VII-8–X-11	*Rumex, Polygonum*
Ametastegia equiseti (Fallén)	0	1	0	0	1	VI-27	*Rumex*
Ametastegia becra Smith	0	1	0	0	1	VIII-5	
Ametastegia pallipes (Spinola)	56	50	0	0	106	IV-13–X-18	*Viola*
Ametastegia pulchella (Rohwer)	3	4	0	0	7	IV-20–VI-30	
Ametastegia tener (Fallén)	0	1	0	0	1	IX-21	*Rumex*
Empria maculata (Norton)	6	4	0	1	11	IV-23–VI-5	*Fragaria, Potentilla*
Empria multicolor (Norton)	5	0	0	0	5	V-9–VI-12	*Alnus, Betula*

Table 1. Continued.

Families, Species	YT	YGT	WSHT	ET	Total	Dates	Recorded Hosts
Macremphytus testaceus (Norton)	4	1	1	1	7	VI-17–VII-14	*Cornus*
Taxonus epicera (Say)	6	10	0	0	16	IV-28–V-15	
Taxonus pallidicornis (Norton)	2	0	0	0	2	VI-12	*Rubus*
Taxonus pallipes (Say)	14	0	3	0	17	V-17–IX-4	
Taxonus terminalis (Say)	1	0	0	1	2	VII-10; VIII-21	*Rubus*
Tenthredininae							
Lagium atroviolaceum (Norton)	0	1	0	1	2	VI-5; VI-19	*Sambucus, Viburnum*
Aglaostigma semiluteum (Norton)	1	0	0	0	1	V-22	*Impatiens*
Tenthredo rufopecta (Norton)	2	2	6	0	10	IV-20–VII-17	
Tenthredo sp.	1	0	0	0	1	VI-3	
Macrophya alba MacGillivray	1	0	0	0	1	VII-17	
Macrophya albomaculata (Norton)	0	0	1	0	1	VIII-8	*Sambucus*
Macrophya cinctula (Norton)	0	1	0	0	1	VI-9	
Macrophya flavicoxae (Norton)	1	1	0	0	2	VI-10; VI-17	
Macrophya flavolineata (Norton)	0	1	1	0	2	V-8; V-29	
Macrophya formosa (Klug)	11	0	2	1	14	VI-3–VII-24	
Macrophya goniphora (Say)	0	1	2	0	3	VI-14–VII-2	
Macrophya lineatana Rohwer	1	1	0	0	2	VI-9; VI-29	
Macrophya macgillivrayi Gibson	2	0	0	0	2	V-22; VII-14	
Macrophya mensa Gibson	2	3	0	1	6	V-14–VII-9	
Macrophya mixta MacGillivray	0	1	0	0	1	V-8	*Viburnum*
Macrophya pannosa (Say)	1	0	2	0	3	V-7; V-14	*Sambucus*
Macrophya pulchella (Klug)	3	0	0	0	3	VI-10–VII-1	
Macrophya senecca Gibson	0	0	0	1	1	V-15	
Macrophya simillima Rohwer	0	1	0	0	1	V-22	*Rudbeckia*
Macrophya succincta Cresson	0	2	0	0	2	IV-21; V-1	
Macrophya tibiator Norton	0	0	2	0	2	V-29; VI-12	
Macrophya trisyllaba (Norton)	1	0	0	0	1	VI-4	*Sambucus*
Macrophya varia (Norton)	6	1	1	1	9	VI-22–VII-17	
Macrophya zoe Kirby	2	0	0	0	2	V-21; V-25	
Totals	418	402	89	39	948		

end about 2 m above the ground. The traps were left up continually from the last week in March to the first week in November from 1980–1985 for the yard traps and 1983–1984 for the TNSRC traps. Collections were made about once a week. Specimens were identified by DRS, except for most *Pristiphora* which were identified by H. R. Wong. Voucher specimens are deposited in the National Museum of Natural History, Washington, D.C.

Results and Discussion

Species and abundance.—Species and numbers of specimens collected from each site are listed in Table 1. At all sites, 948 specimens representing 10 families, 53 genera, and 117 species were caught. This rep-

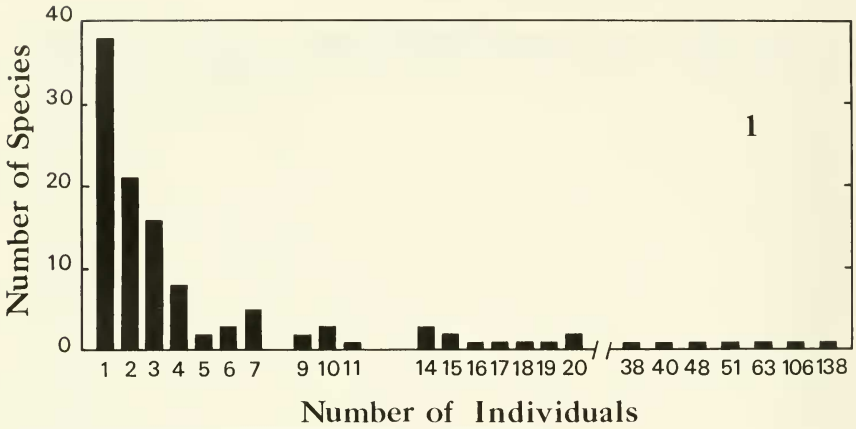


Fig. 1. Frequencies of specimens per species in the total sample.

resents more than half of the approximately 220 species of Symphyta that are expected to occur in the Washington, D.C., metropolitan area (DRS, personal notes). In the two urban environments, 820 specimens of 104 species were collected. For all sites, 35 species were found only in Fairfax Co., 16 in Glen Echo, and 13 at TNSRC. Fairfax Co. and Glen Echo had 20 species in common; Fairfax Co. and TNSRC, 14 species; and Glen Echo and TNSRC, 9 species. Ten species were found in all three study sites. Differences in species composition at each site (Table 1) are likely due to the different hosts present near the traps, length of sampling time (two years at TNSRC), and/or the type of trap used. For example in Glen Echo, 402 specimens were caught in two traps, whereas in Fairfax Co., 418 specimens were caught in one trap.

Frequencies of specimens per species (Fig. 1) indicated that only a few species are present in large numbers. For 83 species (81%) only four, or fewer, individuals were caught. The collection of only one to several specimens of a species may indicate species rarity, accidentally wind-blown individuals from other habitats, or representatives of groups, e.g. *Macrophya*, that are strong fliers and may fly far in search of hosts in other areas.

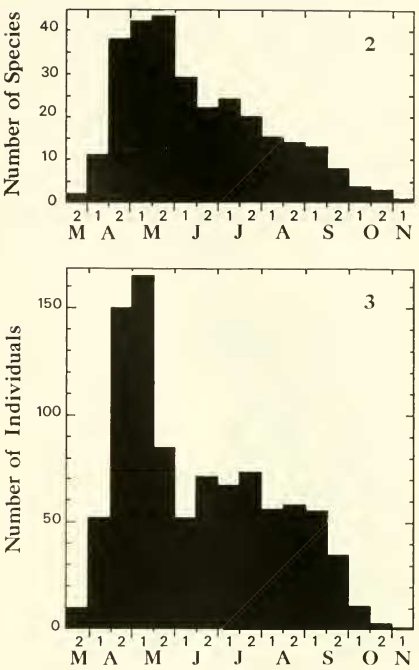
Several species, not listed in Table 1, were hand collected in the Fairfax Co. yard but never collected in the traps. These are *Atomacera decepta* Rohwer defoliating *Hibiscus* sp., *Allantus viennensis* (Schrank) on *Rosa* sp., *Urocerus cressoni* Norton collected at large, and a *Neodiprion* sp. on *Pinus* sp. However, most species collected in the traps were never observed, or hand collected, in the yard. This indicates a limitation of the use of a single sampling method. A combination of trapping and observation gives a more complete picture of the fauna.

Seasonal distribution.—The earliest sawflies collected were *Xyela* spp. on March 20 and the latest was *Pachynematus corniger* on November 4. Sawflies were present throughout the intervening period, but the peak in numbers of species and numbers of specimens was from the second half of April through the second half of May (Figs. 2, 3). The flight time for each species is given in Table 1, and examples of different types of flight periods are shown in Fig. 4. Adults appear for a short time once a year for most

species, indicating that most are univoltine, and most of these appear in the spring: 64 species appeared during April to June, similar to the flight period of *Eutomostethus ephippium* (Fig. 4); 16 species appeared mostly during June to July; 11 species appeared during July to August; and 4 species were late fliers, appearing only during August and September, similar to the flight period of *Metallus rohweri* (Fig. 4). One species, *Allantus nigritibialis,* had two flight periods, one in spring and one in late summer (Fig. 4). Seventeen species were collected through a large part of the season, and peaks of occurrence were apparent during several periods, similar to the flight periods of *Acordulecera pellucida* and *Schizocerella pilicornis* in Fig. 4; these apparently have several generations a year.

Host-plants.—Sawflies collected in all sites feed on 53 plant genera in 30 families based on recorded hosts (Tables 1, 2). Host-plant records are from Smith (1979) and Gibson (1980). If more than one host is recorded for a species (e.g. *Acordulecera dorsalis*), all are listed, and the total specimens for the species is given for each host in Table 2 since it is not known which host(s) is utilized in the study sites. For sawflies collected in the urban environments, the most common hosts are those used as ornamentals or those present as weeds, and Rosaceae was the most utilized plant family based on numbers of sawfly species and specimens. At TNSRC, however, only two species for which the host is known are associated with members of Rosaceae. Since sawfly species and abundance are dependent on available hosts, the trend in urban environments should be toward dominance of those species associated with cultivated plants.

Urban species.—Most species collected in the urban environments also occur in natural environments, though some (Table 1) were much more abundant in the yards sampled. Only two species, *Allantus nigritibialis* and *A. viennensis* (both associated with cultivated *Rosa* spp.) have yet to be found outside urban environments (DRS, personal notes).



Figs. 2, 3. Numbers of species and individuals caught from March (M) to November (N), based on half month intervals. 1 = first half of the month; 2 = second half of the month.

Notes on Species

Xyela spp.—The two species were the earliest flying sawflies, caught from March 20 to April 7. Larvae feed in staminate pine cones, and adults fly to flowers of other plants to feed on pollen; their flight time usually coincides with the availability of adult food. When numerous, larvae are sometimes a nuisance when dropping from the pine trees to the ground where they enter the soil and form pupal cells.

Onycholyda luteicornis.—This was the

Table 2. Host plants and number of species and number of individuals collected associated with those plants.

Plant Hosts		Number of Sawfly Species	Number of Specimens
Pterydophyta			
Equisetaceae	*Equisetum*	1	3
Polypodiaceae	*Onoclea*	2	4
	Pteridium	1	1
	"fern"	1	3
Spermatophyta			
Gymnospermnae			
Pinaceae	*Pinus*	3	17
Cupressaceae	*Juniperus*	1	1
Dicotyledonae			
Angiospermae			
Violaceae	*Viola*	2	108
Tiliaceae	*Tilia*	1	2
Malvaceae	*Hibiscus*	1	1
Portulacaceae	*Portulaca*	1	138
Polygonaceae	*Rumex*	3	6
	Polygonum	1	4
Balsaminaceae	*Impatiens*	1	1
Anacardiaceae	*Rhus*	2	5
Aceraceae	*Acer*	1	20
Rosaceae	*Spiraea*	1	4
	Rubus	6	43
	Rosa	3	70
	Potentilla	2	17
	Pyrus	1	3
	Crataegus	2	3
	Prunus	4	9
	Fragaria	1	10
	Geum	1	7
Fabaceae	*Robinia*	2	8
	Desmanthus	1	4
Fagaceae	*Castanea*	1	48
	Quercus	9	66
	Fagus	1	2
Betulaceae	*Betula*	4	9
	Alnus	3	7
	Corylus	2	50
Juglandaceae	*Carya*	2	49
	Juglans	1	48
Salicaceae	*Populus*	1	1
	Salix	5	6
Ulmaceae	*Ulmus*	1	2
Cornaceae	*Cornus*	1	7
Ericaceae	*Rhododendron*	1	20
	Vaccinium	3	14
Primulaceae	*Lysimachia*	1	1
Oleaceae	*Fraxinus*	2	4
Convolvulaceae	*Convolvulus*	1	2
	Ipomoea	1	2
Rubiaceae	*Cephalanthus*	1	1
	Galium	1	7
Caprifoliaceae	*Sambucus*	4	7
	Viburnum	4	11
	Lonicera	1	18
Compositae	*Rudbeckia*	1	1
Monocotyledonae			
Liliaceae	*Polygonatum*	1	1
	Smilacina	2	8
Juncaceae	*Juncus*	1	1
Poaceae	"grasses"	5	105

most common pamphiliid and was captured only in the yard traps. Larvae live and feed in rolled leaves and webs of their own making on *Rubus* spp.

Acordulecera dorsalis.—The peak flight was in May and the species was most common in Fairfax Co. and TNSRC. In Fairfax Co., larvae may feed on *Quercus* sp. or *Carya* sp. nearby. This group has not been studied, and there may be more than one species under this name.

Acordulecera pellucida.—The host of this species is not known. It was collected in both yard traps from April to October (Fig. 4) with peak flight periods twice during the season.

Schizocerella pilicornis.—This species represented 14% of the specimens collected (138 specimens), most of which were from the yard-garden trap. It is common in urban environments where its larvae feed on purslane (*Portulaca* spp.), a commonly cultivated, or weed, plant. Flight time is shown in Fig. 4.

Atomacera decepta.—This species is a defoliator of ornamental *Hibiscus* on which it was found in Fairfax Co. It was not collected in the trap. It may be present from May to

September, passing through several generations.

Zaraea lonicerae.—This adventive European species has become common in the D.C. area during the past 20 years. Larvae feed on *Lonicera* spp., and adults fly during April and May.

Neodiprion sp.—No adults were collected in traps, but larvae were found feeding on *Pinus* spp. in Fairfax Co. Several species are known to be destructive to ornamental pines.

Diprion similis.—One specimen of this adventive European species was collected in Fairfax Co., and it is the first record of this species for northern Virginia. This pine-feeding species was known from northeastern United States south to Pennsylvania and from an isolated area in extreme southwestern Virginia into North Carolina.

Xiphydria maculata.—The larvae of this species bore in wood in branches of *Acer* spp. Adults were found only at the Fairfax Co. site where maple is a dominant tree.

Heptamelus ochroleucus.—This adventive European species feeds on ferns and was known only from British Columbia and New York. More recently it was found in Maryland, and now in Fairfax Co. Adults were collected in spring and fall.

Dolerus nitens.—This adventive European species feeds on grasses and has spread rapidly in North America. It is sometimes abundant during its very short flight period.

Cladius difformis.—Commonly called the bristly rose slug, it is one of the common defoliators of cultivated roses and was collected at both yard trap sites and found feeding on roses in Fairfax Co. This species has several generations a year.

Amauronematus sp.—This species cannot be identified until taxonomic difficulties are resolved. Known hosts for members of the genus are *Alnus* spp. and *Salix* spp.

Metallus rohweri.—This species was collected only in late summer and early fall (Fig. 4). The larva is a leafminer of *Rubus* spp.

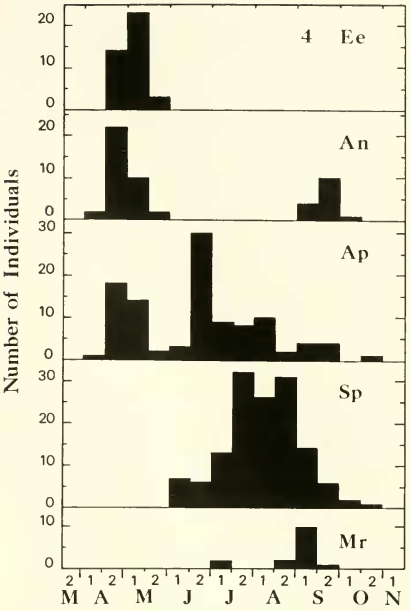


Fig. 4. Adult flight periods for selected species. *Eutomostethus ephippium* (Ee), early-spring; *Allantus nigritibialis* (An), spring and fall; *Acordulecera pellucida* (Ap), entire season; *Schizocerella pilicornis* (Sp), primarily mid-summer; and *Metallus rohweri* (Mr), late summer and early fall.

Fenusa pusilla.—Known as the birch leafminer, this species is a common pest farther north, though it is sometimes abundant on ornamental birch in the D.C. area. A single specimen was collected in the field trap at TNSRC.

Eutomostethus ephippium.—This is adventive from Europe and has spread rapidly in North America. It can be abundant during its short flight period in early spring (Fig. 4).

Allantus nigritibialis.—This was a rarely collected species before we initiated trapping. It was found on and reared from larvae feeding on cultivated roses in Fairfax Co., and adults were collected in both yard trap

sites. Collection records indicate a spring and a late summer to fall generation (Fig. 4).

Allantus viennensis.—This species was not collected in the traps but was reared from larvae feeding on cultivated roses in Fairfax Co. It is an adventive European species, first recorded in North America from near Ithaca, New York. The Virginia specimens represent the second North American record.

Monostegia abdominalis.—Specimens collected in the Fairfax Co. trap represent a new record for Virginia and the southernmost record for the species.

Ametastegia pallipes.—This species was collected in large numbers and only in both yard trap sites. Its host, *Viola,* is a common weed species. Adults were collected throughout the season from April to October with peak numbers during the end of May and first of April, the end of July and first of August, and the end of September.

Macrophya spp.—Of the approximately 40 species in eastern North America (Gibson, 1880), we collected 20 during this study. Most collections are represented by very few specimens. Hosts are not known for many of the species. They are strong fliers and many may have been accidental catches and may not be associated with plants in the trap vicinities.

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